



DIVISION OF  
CORPORATION FINANCE

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549

January 6, 2011

Stephen D. Barnhill, M.D.  
Chief Executive Officer  
Health Discovery Corporation  
2 East Bryan Street, Suite 502  
Savannah, GA 31401

**Re: Health Discovery Corporation  
Registration Statement on Form S-1  
Filed December 10, 2010  
File No. 333-171120**

Dear Mr. Barnhill:

We have limited our review of your registration statement to those issues we have addressed in our comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by amending your registration statement and providing the requested information. Where you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your registration statement and the information you provide in response to these comments, we may have additional comments.

General

1. Please note that we will not be in a position to clear our review of this Form S-1 registration statement until we have cleared comments on your currently outstanding confidential treatment request.

Prospectus Cover Page

2. The cover page of the prospectus refers to offers of additional shares of common stock as a result of anti-dilution provisions, stock splits, stock dividends or similar transactions. With a view toward disclosure, please tell us whether this language is a function of your intent to rely on Rule 416 for adjustments to shares underlying the warrants. If so, in your letter please describe your understanding of the scope of the adjustments to the shares underlying the warrants that would potentially be covered by Rule 416. In formulating your response, please consider Question 213.02 of the Compliance and Disclosure Interpretations-Securities Act Rules that you may find in Division of Corporation Finance materials available at [www.sec.gov](http://www.sec.gov).

Selling Shareholders, page 14

3. Immediately following the table, please briefly disclose the material terms of the transactions in the past three years in which the selling stockholders acquired the shares now being offered. Such disclosure should include the dates of the transactions and the material terms thereof including the price paid. Please ensure that the participation of specific selling shareholders in any such transactions is identifiable from the disclosure.

Signatures, page II-8

4. Please confirm that Mr. Gallagher is your Principal Financial Officer as nowhere in the Form S-1 registration statement, except in the Signature page, is this fact noted.
5. Please ensure that the signature of your comptroller or principal accounting officer is provided. The signature of the person signing in that capacity should be accompanied by an indication that the signature is given in that capacity. Please see Section 6 of the Securities Act of 1933, as amended.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Act of 1933 and all applicable Securities Act rules require. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

Notwithstanding our comments, in the event you request acceleration of the effective date of the pending registration statement please provide a written statement from the company acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;
- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
- the company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Please refer to Rule 461 regarding requests for acceleration. We will consider a written request for acceleration of the effective date of the registration statement as confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

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Please contact Phil Rothenberg at (202) 551-3466 or me at (202) 551-3462 with any questions. If you require further assistance, please contact Barbara C. Jacobs, Assistant Director, at (202) 551-3735.

Sincerely,

Mark P. Shuman  
Branch Chief

cc: Arnold M. Zipper